CENTRAL ASIAN JOURNAL OF INNOVATIONS ON TOURISM MANAGEMENT AND FINANCE

https://cajitmf.casjournal.org/index.php/CAJITMF

Volume: 07 Issue: 01 | January 2026 ISSN: 2660-454X

Article

Enhancing Cooperation Between Science and Production in Higher Education Institutions as A Key Factor for Increasing the Competitiveness of the Educational Services Market

Abdukadirova Kamola Azimovna[*1]

1. Tdiu basic doctoral student.

Abstract: This article examines the affordability of the educational services market through the proliferation of science and industry interaction in higher education in Uzbekistan. The role of sci-tech advancement for economic growth through the highly productive nature of the education system and the increasing quality of higher education is becoming more valuable. That's why the cooperation of educational institutions with science and production is an important component of increasing the competitiveness of the educational services market. The need, as well as the importance of collaboration between science, education, and production in the context of improving the competitiveness of the economy and education of the country are considered in the article. It also examines the policies and measures set in Uzbekistan by governmental bodies to improve these integration activities, that aim to tightly link scientific and educational processes with the industrial sector and establish innovation advancement directions.

Keywords: Integration, Technology, Individual, Monographs, Non-State Higher Education.

Citation: Azimovna A. K. Enhancing Cooperation Between Science and Production in Higher Education Institutions as A Key Factor for Increasing the Competitiveness of the Educational Services Market. Central Asian Journal of Innovations on Tourism Management and Finance 2026, 7(1), 142-148.

Received: 09th Aug 2025
Revised: 15th Sep 2025
Accepted: 23th Okt 2025
Published: 29th Nov 2025

1. Introduction

The link between the higher education system and the science sector is fundamental to opening up the development potential of Uzbekistan. In present times, changes in the global economic, social and technological areas require lots of resourceful professionals and effective approaches [1]. Thus, the integration of educational and science with production is significant for forming a competitive economy primarily in the area of increasing market of educational services.

This can be research and production methods are combined in universities, which not only improves the quality of education but also opens up possibilities for the creation of innovative products and services. At the same time providing and improving competition in the educational services, training staff and providing different sectors of the country with modern scientific development leads to the sustainable development of the country. The reason for this was the progressive integration of Uzbekistan's higher education system and science into the world's education space, in accordance with the relationship between education, science and industry, and their impact on the competitiveness of the educational services market [2]. The article outlines the current state of integration relations, analyzes problems and possibility in its functioning, for rational expertise of possible and necessary relations between the sectors of education and industry.

Literature Review

One of the most relevant topics in the international world of science, as well as in Uzbekistan, is the problem of improving the integration of science and industry in higher education institutions. This analysis uses data from several sources and covers these key areas:

Integration is defined as the process of improving interactions and collaboration between two or more institutions or sectors. Integration of scientific research and production activities in higher education institutions creates opportunities for new knowledge and innovation.

Integration of science and production at higher education institutions is a serious problem within the framework of the renewal and modernization of Uzbekistan's education system [3]. The Development of Education initiatives, which launched in 2017, include multiple efforts to strengthen this integration. Higher education institutions blend exclusive research with industry needs to facilitate a handful of steps for innovative progress.

Contrary to the focus on supporting corporate structures, which can be seen as the unit of action during the industrial era, the main strategic aim of the state at this highly industrialized stage is to nurture the cluster, viewed not only as a unit of action, but also as the basis for enhancing the better global competition of nations and/or regions in the globalization age. As A. V. Babkina noted: "The cluster framework of the economy transfers the conditions and elements of innovation-oriented economic dynamics to the level of the region, increasing their competitive relevance for solutions of development problems". The role of the agglomeration factor, restudy by Ye. The appeal towards I. Lazareva's impact zone as the zone where "critical mass" of human and social capital, and scientific, production and innovational potential, ensuring clusters stability and systemic emergence and competitiveness, is especially increasing. The latter half of the 20th century and the early years of the 21st century were characterized by the active search for a sustainable supply of innovative development, and theories in innovative economics and innovation management appeared. In these studies, the innovation theory, associated with the names of Y. Schumpeter and E. Hansen, stands out [4]. The search for new (further) drivers of value growth led to theoretical research into a resource-based view of sustainable, innovation-driven, economic development, which has finally contributed to the gradual embedding of the idea of human capital as the key resource for sustainable, innovative development into the management system. The human capital literature involves scientific methods pointing to clear, separate, non-overlapping sources of progress: method, technology, and new management.

Second, the problems linked to the innovative focus of economic development are only related to a specific reproduction cycle, abstracting future dynamics and not signalling the long-term consequences. From: B.Z. Milner, B.N., Kuzik, Yu. Kossova, and Al. Larry Xu F and V. Yakoves develop the idea of extension of human capital, giving rise to a gradual integration not only of its economic and individual features, but also its non-economic, social indicators into the concept of a strategic manager [5]. Given current conditions and the transition to an innovation-based economy, an entirely new paradigm around transitioning the new, more advanced, higher dimensions of human potential into decision-making (strategic and otherwise) is now taking hold.

2. Materials and Methods

This research analyzes the way in which higher educational institutions can reinforce the bond linking science and industry, both in terms of advantages and drawbacks of putting human capital to use. The research combines both analytic and empirical methods. We convey a theoretical backbone through literature analysis and synthesis, and we convey the perceptions of students, teachers, and producers via

sociological surveys conducted in regard to this issue. The specific focus of in-depth interviews with scientists and industry representatives provides greater insight into the current opportunities, obstacles and expectations. Paper also looks into evening and correspondence education system being prevailed at present and assessment considered on this system for meeting needs of the industry. It also analyzes the current situation of cooperation forms between universities and production, the necessary conditions for integration and the successful experiences of the world [6]. Particular emphasis is placed on the typical issues that develop in collaboration, and pragmatic ways to mitigate those. This methodology is based on scientific publications, monographs, official statistical data, as well as the world practices that provide a high degree of validity in understanding integration processes. In the end, the research gives suggestions that will help strengthen collaboration, increase the direction of educational programmes, and assist in building a more creative, sector-responsive higher education system.

3. Results and Discussion

There has been a marked increase in the links between the research activities of higher education institutions and the production sector. By 2023, more than 37% of scientific research conducted in higher education institutions of the Republic of Uzbekistan is orientated towards such industrial sectors as light industry, chemistry, energy, information technology, and others. This implies a direct connection between science and production [7]. More than 150 research centers linked to higher education institutions operate, which generate more than 2,000 scientific publications each year aimed at improving production and technologies.

Competitiveness over time is a function of products and technologies that higher education institutions create [8]. The number of patents and utility model certificates sourced from higher education institutions of Uzbekistan saw a 15% increase in 2022, amounting to more than 1,500. Furthermore, the annual growth rate of startups and innovative projects in Uzbekistan as a result of interaction between science and production is 20-25% (Figure 1).

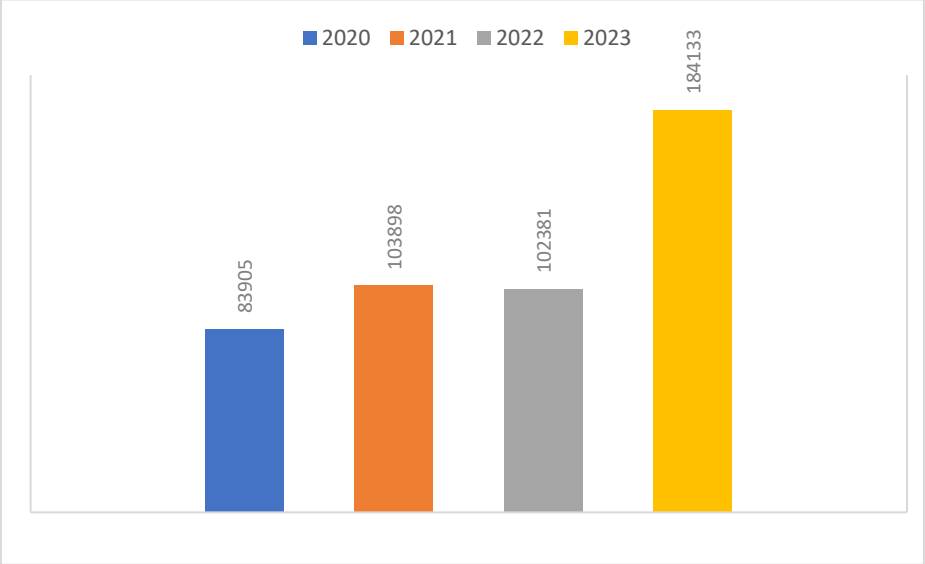

Figure 1. Number of graduates of higher education institutions.

The analysis shows that the number of graduates increased during the period from 2020 to 2021 by 19,993. That represents an increase of 23.8%. The total number of graduates dropped by 1,517 between 2021 and 2022, a 1.5% overall decrease. The total graduates increased by 81,752 or 80% between 2022 to 2023.

The increase in the number of graduates is connected to an overall bettering of the quality of higher education institutions [9]. For instance, the reforms in the education system of Uzbekistan as reducing the workload in writing books, modernization of the education program, and improvement of the training process of personnel are increasing the number of graduates.

Differences in the number of graduates also reflect the diversity of educational modes in higher education. The number of graduates has increased even more in the last years due to both evening and part-time educational possibilities, albeit full-time education was the dominant mode in the first years. It can do this without compromising on production requirements while also enabling students to learn hands-on.

There was more and more imperative of increasing the number graduating from higher learning institutions, to ensure the economic development of Uzbekistan and meeting the requirement of her youth [10]. Increasing graduate populations are essential to maintaining social harmony, increasing employment opportunities and fuelling economic growth.

Fig. Registering changes of the number of the graduates of higher educational establishments in Uzbekistan [11]. The growth seen over 2020-2023 is related to better quality of education, variety of education forms and increasing socio-economic requests. Reforms in the field of education in Uzbekistan will serve as a basis for subsequent growth in the number of graduates.

Force from the data on the number of students in higher education institutions of Uzbekistan by different forms of education for the period 2010-2023. Such changes have been influenced by the number of students who study in full-time, evening and part of the time forms of education.

According to the figure, the number of students studying in full-time education increased from 2010 to 2023 (Figure 2):

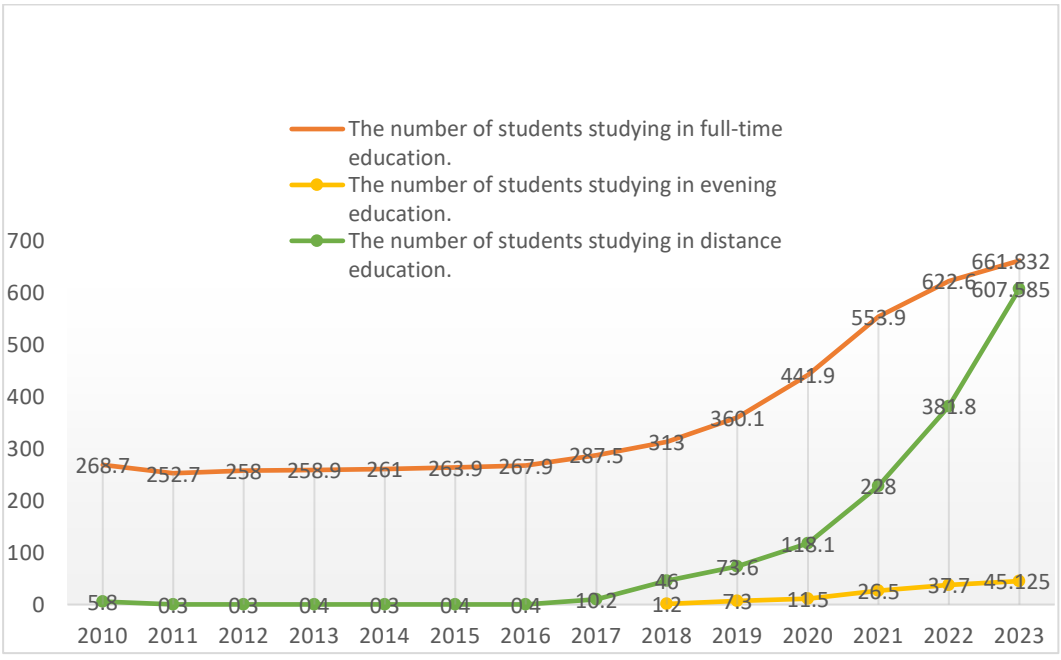

Figure 2. The number of students in higher education institutions in the Republic of Uzbekistan by form of education.

This is a bump of 393,132 people over the course of 13 years. This rise is 146.4%. While the daily student population has increased only marginally from 0 in 2010 to 45125

in 2023, in the context of evening education. This indicates that the popularity and need for night classes are on the rise [12].

With distance learning, the number of students has grown in range from 5.8 to 607,585 by 2010. This is because distance learning is aligned (in practice and partially by necessity there are opportunities for students to find jobs).

This increase is also associated with an improvement in the quality of education. Whilst reforms in the education sector (renewing curricula, professional development of teachers) will help improve the quality of education for children and make sure that they are competitive.

The growth of pupils in full-time schooling is indicative of an expanding economy and a more educated population. On the other hand, the development of alternative styles of education opens up new opportunities for learners, and this process is a great contributor to maintaining social peace.

Reforms in the process of teaching, growth in the number of students enrolled in the educational system, and improvements in the quality of education underlying the development of the education system of Uzbekiston [13]. There will be further expansion in education and the introduction of new formats that will introduce students to contemporary requirements.

This research demonstrates the transformation of types of education in higher educational institutions of the Republic of Uzbekistan. Over the period 2010-2023 changing in full-time evenings and part-time forms of education can be related to increasing of full-time, daytime and part-time types of education associate with increase in the education quality and tend to increase the different socio-economic demand. These alterations are very significant in the course of subsequent evolution of Uzbekistan's educational system.

The third part of the study discusses the trend of non-state higher education institutions and their associated number of students from 2018 until 2023. It mirrors change in the number of non-state educational institutions, and the creation of new opportunities for children (Table 1).

Table 1. Number of higher education institutions in the Republic of Uzbekistan.

	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Number of non-state higher education institutions (total)	1	4	5	17	42	90
Number of foreign higher education institutions	10	16	18	25	26	31
Number of higher education institutions	98	119	127	154	191	219

The number of non-state higher education institutions increased from 1 to 90 between 2018 and 2023, a whopping 8,900% growth that illustrates the rapid consolidation of a private educational wing within Uzbekistan. These institutes, though still studently low in number, also saw an increase in enrolment, from 10 to 31 a 210 percent increase which reflects the efforts needed to improve attractiveness, quality, and public trust about private education [14]. The number of higher education institutions in the country grew in parallel from 98 to 219, due to national reforms, more regional access, and demand for modern, globally relevant academic programs.

The rapid proliferation of non-state universities was induced by government encouragement for private sector participation, burgeoning demand for higher education owing to the youth bulge, and diversification in the range of programs offered by private universities. Moving forward, the number of non-state universities will keep increasing, and thus, providing wider access to education and encouraging fair competition in the sector [15]. In that sense, the rapid expansion of private higher education is not only indicative of the success of the reforms that have taken place to date, but also constitutes an important step towards improving the quality of education, broadening student access, and contributing to the sustainable socio-economic development of Uzbekistan in the longer-term.

4. Conclusion

Boosting the integration of science and industry at higher education institutions has more important socio-economic role for Uzbekistan economy. Collaboration not only assists in injecting science-based solutions into true production but also guarantees that universities produce high-level, and competitive, graduates. The analysis makes the following key conclusions. To begin with, Integration makes sense: Synergistic collaboration between science and production speeds up the diversification of innovations and thereby enhances the economy as a whole. Joint projects between the universities and the industry are equally important as they produce new technologies and provide students with real-life experience. However, despite these advantages few obstacles still exist sampling from inadequate resource, knowledge gaps and weak coordination between academia and industry needs. Lastly, it should start implementing other methods to better sustain this partnership, like innovation ecosystems, joint research centers, student internships, and field practice. These steps will allow universities to offer greater support to national development that in turn increases the competitiveness of Uzbekistan and the formation of the knowledge-based economy.

REFERENCES

[1] G. Abdullaeva, *Integration of Science and Production in Higher Education Institutions*. Tashkent: Ministry of Education of the Republic of Uzbekistan, 2020.

[2] A. Jumaniyozov, "Innovations and scientific research: application to production," *Journal of Science and Technologies of Uzbekistan*, vol. 3, no. 2, pp. 45 to 56, 2019.

[3] Tashkent University of Economics, *Development of Scientific and Innovative Activities in the Higher Education System: Innovations and Approaches*. Tashkent: Tashkent University of Economics, 2020. Available: https://www.tseu.uz/

[4] A. Tursunov, "Strengthening cooperation between science and production," *Innovative Development and Education*, vol. 1, no. 1, pp. 78 to 84, 2018.

[5] Cabinet of Ministers of the Republic of Uzbekistan, "Measures on the Integration of Science and Education with Production," Resolution, Jul. 14, 2018. Available: https://gov.uz/

[6] K. Islamov, "Connecting scientific research with production: experiences and prospects," *Proceedings of the International Scientific Conference*, vol. 3, pp. 34 to 40, 2020.

[7] UNESCO, *Education and Industry Cooperation: Strengthening Market Competitiveness*. Paris: UNESCO Publishing, 2021. Available: https://www.unesco.org/en

[8] World Bank, *Uzbekistan Higher Education System: Modernization and Industry Linkages*. Washington, DC: World Bank, 2020. Available: https://www.worldbank.org/en/country/uzbekistan

[9] N. Mansurov, "Strengthening the links between science and production: practical recommendations," *Uzbekistan Innovative Development*, vol. 6, no. 4, pp. 90 to 95, 2023.

[10] O. Davronov, "Education and science: global trends and local problems," *Uzbekistan Education System*, vol. 1, no. 5, pp. 10 to 20, 2022.

[11] OECD, *University Industry Collaboration: New Evidence and Policy Options*. Paris: OECD Publishing, 2021.

[12] H. Etzkowitz and L. Leydesdorff, "The Triple Helix Innovation Model: University Industry Government Relations in Knowledge Societies," *Research Policy*, vol. 49, no. 8, pp. 1 to 12, 2020.

[13] European Commission, *Enhancing Innovation through Higher Education and Industry Partnerships*. Brussels: European Commission, 2020.

[14] P. Altbach and J. Salmi, *The Road to Academic Excellence: The Role of Research Universities in Innovation*. Washington, DC: World Bank, 2021.

[15] T. Yasuyuki, "Knowledge Transfer and University Industry Collaboration in Emerging Economies," *International Journal of Innovation Studies*, vol. 3, no. 2, pp. 65 to 74, 2019.